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PSW FOREST AND RANGE EXPERIMENT STATION
JUN 28 1988
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Reply To: 3420

Date: JUN 10 1988

Subject: Update on Condition of Plantation Scorched by Fire (Report No. 88-14)

To: Forest Supervisor, Klamath N.F.

Stand 19-1 on the Ukonom Ranger District is a ponderosa pine plantation along the Ti Bar Road that was scorched by backfires in September 1987. The plantation was examined to determine its potential for survival in November, 1987 (Report No. 88-1). At that time, it appeared that there were some spots where all trees had been killed by fire but a majority of the area examined still had more than minimal stocking of live trees. Very limited evidence of bark beetle or engraver beetle attack was seen and there did not seem to be much successful brood production.

Concerns about the severity and fate of some fire-caused injuries to Douglas-fir saplings adjacent to the pine plantation prompted another request to evaluate the situation. The area was examined on April 27, 1988 by Dave Schultz, entomologist, James Allison, pathologist, Jim Benson, Forest Silviculturist and Stan Marshall, project forester.

The situation in the ponderosa pine plantation had not changed much since November. Winter weather had removed a lot of fire-killed needles which made it easier to assess some of the damage from vantage points. It is now apparent that there is a large irregular shaped area in the middle of the plantation where virtually all trees were killed by fire. A visual estimate is that about 1/4 to 1/3 of the plantation area has been completely killed. The dead trees are generally less than 10 inches dbh which means that if they are left standing, they will probably not cause much damage to planted seedlings when they eventually fall. The fire also consumed much of the ground cover and aerial portions of brush in these areas. The site was in very good condition to be planted in the spring of 1988, and may still be suitable in 1989.

The remainder of the area has large numbers of trees that were injured by fire but are still alive. There were few signs of attacks by bark or engraver beetles although it was still fairly early in the season to see much activity. Due to the large number of injured ponderosa pine, high residual stocking and drought stress, it is likely there will be some attacks by western pine beetle, Dendroctonus brevicomis, and pine engravers, Ips spp. this summer. Because the trees are already under several types of stress, the approach which is likely to lead to the lowest level of mortality is to avoid entering or disturbing the plantation until soil moisture returns to normal.

Some Douglas-fir saplings in an adjacent area appeared normal from a distance but showed an unusual type of injury when examined closely. The stems had elongated, elliptical areas where the bark was sunken and usually had a shiny purplish color. While these areas superficially resembled cankers, no biotic agents were detected and it became apparent that the cause was radiant heat from nearby heavy fuels such as large stumps or logs.

The significance of these wounds will vary with the size of the wound, current tree vigor and future growing conditions. Douglas-fir is a resinous species and small wounds usually heal over before becoming infected with decay fungi. Wounds which are well above the ground line, involve less than 25 percent of the circumference and extend less than the length of an internode should heal quickly on a well-growing tree. Saplings with the potential to grow well usually have a pointed top, have internodes of 6 inches or more for the past few years and still have 50 percent or more live crown. Assuming the saplings are not overtopped or suppressed by brush or other trees, are free to grow throughout their life and will be harvested within 50 to 80 years, small heat-caused wounds should have little effect on growth or yield. Slow growing trees or trees grown over a long rotation can develop considerable decay as a result of wounding.

If you need additional information, please call Dave Schultz or James Allison at (415) 556-6520.

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DS 6/11/84

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